

**TSG-RAN Meeting #11
Palm Springs, CA, USA, 13 - 16 March 2001**

RP-010035

Title: Agreed CRs (Release '99) to TR 25.925

Source: TSG-RAN WG2

Agenda item: 5.2.3

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version	Versio
R2-010609	agreed	25.925	005	1	R99	Editorial corrections and consistency check	F	3.3.0	3.4.0

3GPP TSG-RAN WG2 Meeting #19
Sofia Antipolis, France, 19-23 February

R2-010609

CR-Form-v3

CHANGE REQUEST

⌘ **25.925 CR 005** ⌘ rev **r1** ⌘ Current version: **3.3.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Editorial Corrections and Consistency Check		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 2001-02-14
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ Editorial cleanup to prepare for Release 4		
Summary of change:	⌘ - minor editorial corrections - Removal of sections related to functions which were not included in Release 99		
Consequences if not approved:	⌘ - possibility of misinterpretation of Broadcast/Multicast functionality in Release 99		

Clauses affected:	⌘ 1, 2, 4, 6.1.1.2.1, 6.3.2, 6.3.6.4.2.1, 6.3.9.1, 6.3.9.2, 7, 8, 9, 10, Annex A, Annex B		
Other specs Affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/>. For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

1 Scope

The present document shall provide a general overview on radio interface related aspects of broadcast/multicast services. This report covers stage 2 and stage 3 aspects of the radio interface.

This report is organised as follows: clause 4 gives an overview on the broadcast/multicast services and their requirements. Clause 5 provides a common model and describes aspects common to all point-to-multipoint services. Clauses 6 to 10 are devoted to the different broadcast/multicast service categories **Cell Broadcast Service**. Each service-specific clause describes the requirements on the interfaces. In these subclauses the impacts on the interface functions and the protocol aspects are described. The present document covers only those items which are in the scope of 3GPP TSG RAN WG 2. Information from Technical Specifications or other documents are provided when it is necessary to understand the requirements described.

Table 1.1: Schedule of the broadcast/multicast services onto the UMTS phases and annual releases

Phase	Release	Broadcast/multicast service
4	1999	Cell Broadcast Service CBS (GSM) Cell Broadcast Service (ANSI-41)

NOTE: A decision to map the services to phases/releases is required for all other broadcast/multicast services.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] 3GPP TS 22.100: "UMTS Phase 1".
- [2] 3GPP TS 22.101: "UMTS Service Principle".
- [3] 3GPP TS 22.105: "Services and Service Capabilities".
- [4] 3GPP TS 25.301: "Radio Interface Protocol Architecture".
- [5] 3GPP TS 25.302: "Services provided by the Physical Layer".
- [6] 3GPP TS 25.303: "UE Functions and Interlayer Procedures in Connected Mode".
- [7] 3GPP TS 25.304: "UE Procedures in Idle Mode".
- [8] 3GPP TS 25.321: "MAC Protocol Specification".
- [9] 3GPP TS 25.322: "RLC Protocol Specification".
- [10] 3GPP TS 25.331: "RRC Protocol Specification".
- [11] 3GPP TS 22.003: "Digital cellular telecommunications system (Phase 2+); Principles of telecommunication services supported by a GSM Public Land Mobile Network (PLMN)".
- [12] 3GPP TS 23.060: "General GPRS Service description; Stage 2".
- [13] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".

- [14] GSM 03.61: "Digital cellular telecommunications system (Phase 2+); Point To Multipoint Multicast Service Description; Stage 2".
- [15] 3GPP TS 23.110: "UMTS Access Stratum, Services and Functions".
- [16] 3GPP TS 25.324: "Broadcast/Multicast Protocol BMC".
- [17] 3GPP TS 24.012: "Short Message Service Cell Broadcast (SMS) Support on the Mobile Radio Interface".
- [18] 3GPP TS 25.402: "Synchronization in UTRAN Stage 2".
- [19] 3GPP TS 25.419: "Service Area Broadcast Protocol SABP".
- [20] TIA/EIA-637-A: "TR45 – Short Message Service for Spread Spectrum Systems".
- [21] [3GPP TS 22.060: "General Radio Packet Service \(GPRS\), Stage 1"](#).

4 Overview of Point-to-multipoint Services and Requirements

It is agreed to have service continuity for GSM/GPRS point-to-multipoint services in UMTS ([1] and [2]). This means that the user gets the same service behaviour as he knows it from GSM or GPRS. The services are Cell Broadcast Service [13] and [Point-to-multipoint Multicast, Point-to-multipoint Group Call and IP Multicast \[1421\]](#).

Combined with the UMTS service classification given in [2] the service classification shown in Figure 1 could be used as a starting point. The figure contains the view in terms of Radio Access Bearer services and should not be applied for higher layers where other categories of services may exist. Future work may result in changes of Figure 1.

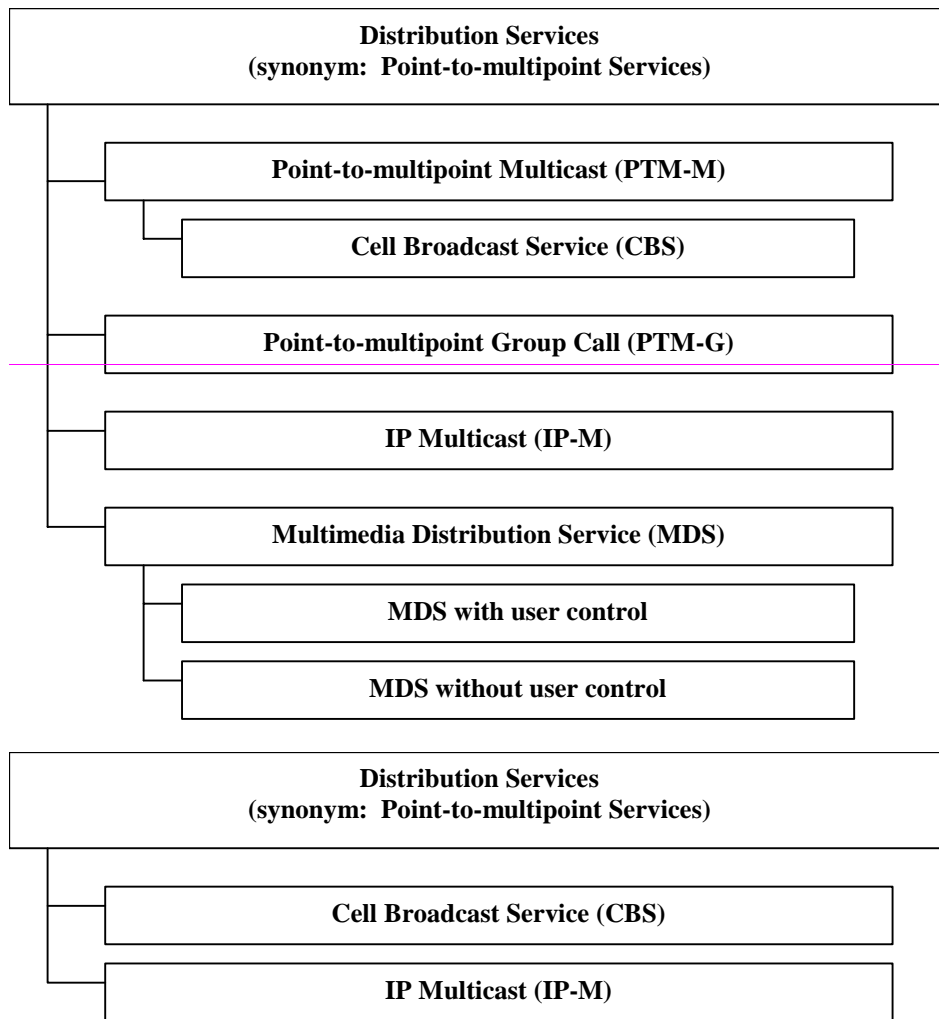


Figure 4.1: Structure of point-to-multipoint services

Table 4.1 gives an overview of broadcast/multicast services as recognised on the radio interface.

Table 4.1: Radio Interface related attributes of broadcast/multicast services [12]

Attributes	CBS (SMS-CB)	PTM Multicast	PTM Group call	IP-multicast
UE modes	Idle Connected			
Logical Channels	CTCH	CTCH	CTCH	CTCH
Necessity of separate control channel	Yes BCCH			
Transport Channels	FACH			
Physical Channels	Secondary CCPCH			
DRX Mode	Yes	Yes	No	Yes
Primary addressing	GEO area	Subscriber group	Subscriber group	Subscriber group
Secondary addressing	---	GEO area	GEO area	---
Present subscribers known	No	No	Yes	Yes
Ciphering	No	No	Yes	Yes
Reliable delivery	No	No	Optional	Yes

6.1.1.2.1 Broadcast/Multicast Distribution for GSM based CB messages

The main objective of the BM-IWF in RNC is to distribute the received CB messages towards the BMC entities configured per cell for further processing. This is done in accordance with the associated schedule information.

The radio interface-related schedule information associated with each CB message is described in 3GPP TS 23.041 [13] and TS 25.419 [19] and is provided in Table 6.1 for information.

Table 6.1: CB Information Elements sent from CBC to RNC for further management

CB Information Element	Description
Message ID	Source and type of CB message
Serial Number	Serial number: Each type of CB message can vary. These variations are expressed by the serial number. The Serial Number consists of three information elements: Geographical scope (values: immediate cell wide, PLMN wide, LA wide, cell wide), Message Code , Update Number .
Data Coding Scheme	Data coding scheme used
Category	Category of the CB message: HIGH: CB message should be broadcast at the earliest opportunity NORMAL: CB message should be broadcast within the associated Repetition Period BACKGROUND: CB message with lowest transmission priority
Repetition Period	Period of time after which broadcast of the CB message should be repeated
Number Of Broadcast Requested	Number of times the CB message is to be broadcast 0: infinitely 1...n: finite number of repetitions
Service Area List	Service Areas List which indicates the group of Service Area(s) that the message will be broadcast to. Note: For CBS, a service area shall consist of only one cell. [13]

6.3.2 Examples of procedures

NOTE: The examples provided in the following subclauses are based on the GSM CBS. For ANSI-41 CBS, similar examples can be derived.

Following examples of procedures are described in this subclause:

- CB message storage in BMC entity and counting of CB message repetition (subclause 6.2.2.1);
- BMC message scheduling (including CBS related radio resource configuration and system information broadcast) (subclause 6.2.2.2);
- Activation of CB message reception in the UE by the User (subclause 6.2.2.3);
- CB message reception with CB DRX (subclause 6.2.2.4);
- BMC Overflow (subclause 6.23.2.5);
- BMC Underflow (subclause 6.23.2.6).

6.3.6.4.2.1 Case 1: O&M system has not requested CB-DRX schedule period

The CBS Schedule period could be chosen by BMC based on the schedule information of the stored CB messages and the current value of the repetition counters configured per CB message. For each CBS Schedule Period a BMC Schedule Message is generated and transmitted inband on the CTCH. The format is as follows:

8	7	6	5	4	3	2	1	Octet:
Message Type (= 0000 0010'B)								1
Offset to Begin CTCH-BS Index								2
Length of CBS Scheduling Period								3
New Message Bitmap								4 – n
Message Descriptions								(n+1) - m

Figure 6.14: BMC Schedule Message coding**Offset to Begin CTCH-BS Index:**

Offset relative to the CTCH-BS index of the BMC Schedule Message pointing to the first CTCH-BS index of the next CBS schedule period. The Offset to Begin CBS Index field is coded in binary. Value range: 1 to 255.

Length of CBS Scheduling Period:

Length of CBS Scheduling period is the number of consecutive CTCH-BS of the next schedule period. Together with Offset to Begin CTCH-BS Index it points to the end of the CBS schedule period. The Length of CBS Scheduling Period field shall be coded in binary, Value range: 1 to 256.

New CBS Message Bitmap

CTCH-BS index B	CTCH-BS index $B+1$	CTCH-BS index $B+2$...					Octet 1
								2
	...	CTCH-BS index $E-1$	CTCH-BS index E	0	0	0	0	...
								N

Legend: B CTCH-BS index of the begin CTCH-BS of the CBS schedule period

E CTCH-BS index of the end CTCH-BS of the CBS schedule period, $E = B + \text{Length of CBS Schedule Period} - 1$

N number of octets necessary to transmit the bitmap

Figure 6.15: New CBS Message Bitmap coding

CTCH-BS Index i :

Bit i of the New CBS Message Bitmap refers to the content of CTCH-BS index i , $i=B, \dots, E$. Its meaning is as follows:

- 1 The CTCH-BS contains possibly partly a BMC Message which was either not sent during the previous CBS schedule period, or sent unscheduled during the preceding CBS schedule period; or, the CTCH-BS is indicated as of free usage, reading advised, or it contains the Schedule Message partly or complete of the following CBS schedule period.

The value is 1 both for the first transmission of a BMC message in the CBS schedule period or a repetition of it within the CBS schedule period.

- 0 The CTCH-BS is such that value 1 is not suitable. If Length of CBS Schedule Period is not a multiple of 8 the remaining bit positions are padded with "0".

A BMC message fulfilling the criterion for bit value 1 is said in the following to be "new". It should be noted that broadcasting of such a message is not necessarily the first one. The network can choose not to send a given BMC message in all schedule periods. In this case it will be "new" each time it has not been sent in the previous schedule period. Another case is when a BMC message is scheduled but its first transmission in the schedule period is pre-empted; the next time the BMC message is "new".

Message Description

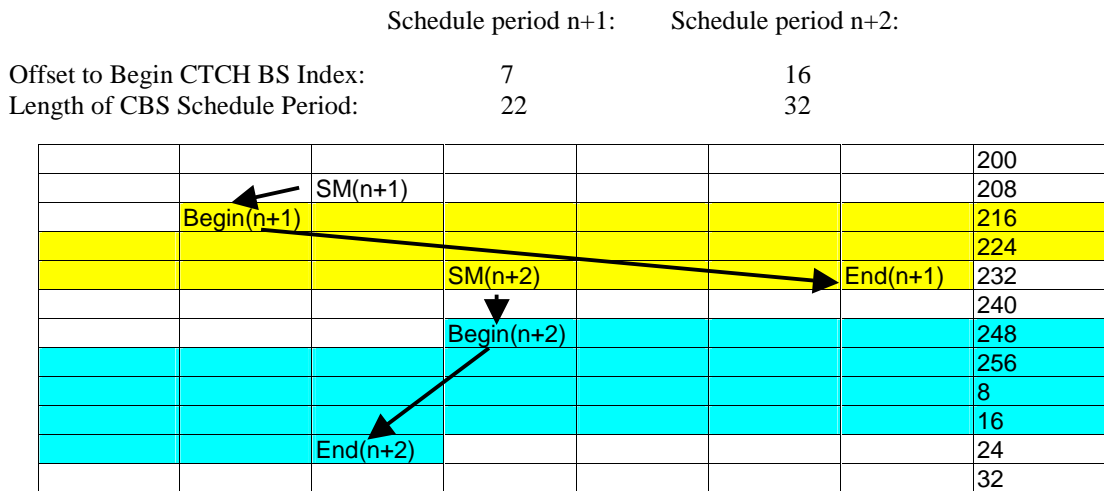
This part contains as many Message Descriptions as there are bits [in the New Message Bitmap](#) except [for](#) the padding bits [in the New Message Bitmap](#).

~~All descriptions pertaining to the first transmission of a new message shall be put at the beginning, so that mobile stations can determine rapidly where the new messages are.~~

The CTCH-BS Index for each description must be derived from the New Message Bitmap.

Example:

For a UE which starts reception on CTCH, the [location of the next first](#) Schedule Message is [unschedulednot known](#). A Schedule Message conveys the information about message identifiers, the location of newly updated CB messages, and the location of the next Schedule message.



Legend: SM(n) BMC Schedule Message of schedule period n. The CTCH block sets between End(n+1) and Begin(n+2) are not employed for any scheduled CB message transmissions.

Figure 6.16: Example of CBS Schedule Periods

6.3.9.1 CBS Compression

The CBS compression is applied on user information transmitted from CBC to UE. With the decision to broadcast a BMC message as one unit CBS compression has no impact on the radio interface.

More information is provided in 3GPP TS 23.041 [13]. Detailed requirements are not available CBS compression has no impact on the BM-IWF.

6.3.9.2 CBS Index

The CBS Index is a CB message on the Application layer between CBC and UE which includes a directory of CBS messages. It is broadcast as a "normal" CB message with the exception that it is always a "new" message with optional reading.

More information is provided in 3GPP TS 23.041 [13]. Detailed requirements are not available.

~~7 PTM-Multicast Service (GPRS)~~

~~This clause contains the requirements derived from GPRS specifications of Point-to-multipoint Multicast service and the analysis regarding the UMTS radio interface Uu.~~

~~NOTE: The GPRS PTM-Multicast service is not part of Release 1999.~~

~~8 PTM-Group Call Service (GPRS)~~

~~This clause contains the requirements derived from GPRS specifications of Point-to-multipoint Group Call service and the analysis regarding the UMTS radio interface Uu.~~

~~NOTE: The GPRS PTM-Group Call service is not part of Release 1999.~~

~~9 IP Multicast Service (GPRS)~~

~~This clause contains the requirements derived from GPRS specifications of IP Multicast service and the analysis regarding the UMTS radio interface Uu.~~

~~NOTE: The GPRS IP-Multicast service is not part of Release 1999.~~

10 Multimedia Distribution Service (UMTS)

This chapter contains the requirements derived from UMTS Technical Specifications and the analysis regarding the radio interface Uu.

NOTE:—The UMTS Multimedia Distribution Service is not part of Release 1999.

Annex A: Functions related to MDS (ffs.)

Previous WG2 Input documents: R2-99075 (LGIC), R2-99076 (LGIC), R2-99218 (LGIC), R2-99219 (LGIC).

Input documents not presented yet: R2-99077 (LGIC).

Related WG2 Output documents: R2-99189 (TSG RAN WG2) LS to SA WG1 and SA WG2 on Multicast.

NOTE:—The following text is taken from R2-99075 and should give a first overview of functions which should be analysed for MDS. Already made decisions are incorporated.

Functions which should be analysed are listed below:

RRC functions:

Variable Rate Support

Dynamic Code usage

Dynamic Scheduling

QoS Support (e.g. repetition time)

(LGIC, R2-99075, for information)

RLC functions:

Unacknowledged multicast data transfer

Multicast Delivery

(LGIC, R2-99075, for information)

MAC functions:

Support of multiple CTCH

Mapping and multiplexing/demultiplexing between CTCH and transport channels

Scheduling among CTCH

Support of dynamic rate change using TFCS

(LGIC, R2-99075, for information)

New types of transport channels are not required.

L1 functions:

Transmission of messages containing multicast data to specific groups of UEs. This service includes provision of the location function necessary to deliver multicast messages to a mobile, which is in idle or slotted mode.

DTX (discontinuous transmission)

DRX (discontinuous reception)

Support of multicast data transmission with multi-code

(LGIC, R2-99075, for information)

Annex BA: Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
12/99	RP-06	RP-99665	-		Approved at TSG-RAN #6 and placed under Change Control	-	3.0.0
03/00	RP-07	RP-000050	001		Miscellaneous corrections	3.0.0	3.1.0
	RP-07	RP-000050	002		Correction of RNC functions	3.0.0	3.1.0
09/00	RP-09	RP-000367	003		Corrections	3.1.0	3.2.0
12/00	RP-10	RP-000577	004	1	Correction to ANSI-41 Cell Broadcast Service	3.2.0	3.3.0